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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SHARP, JEFFREY ANDREW

ART UNIT	PAPER NUMBER
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3677

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,948

Applicant(s)

BUCKNELL, JOHN WENTWORTH

Examiner

Jeffrey Sharp

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 32-35 is/are rejected.
- 7) ☐ Claim(s) 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 May 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

- [1] Claims 1-22, and 32-36 are pending.
Claims 23-31 have been cancelled.

Drawings

- [2] The drawings are objected to because:

Figure 4 contains duplicate identifier "32".

Figure 33 contains new matter (added 3.005 mm and 3.00 mm pitch dimensions) from previously submitted Figure 30 submitted 11/03/2003, which originally labeled both internal and external thread pitches as being 3.05 mm.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

[3] The disclosure is objected to because of the following informalities:

Page 8, line 15, "body" should be buddy.

The amendment filed 5 May 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The original set of drawings suggests the pitch of both the internal and external threads to be 3.05 mm (Figure 30). Applicant has amended the specification to read 3.5 mm (page 3 line 30). There is no support for an external puller bar thread pitch of 3.5 mm. Further, there is no support for the pitch of the external thread of the puller bar to be 3.0 mm (page 4 line 11). Even further, there is no support for the pitch of the

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internal thread of the studbolt to be 3.0 mm (Page 3 line 31 and Page 4 line 12). Neither of the replacement drawings or originally filed drawings contain these limitations.

Applicant is required to cancel the new matter in the reply to this Office Action.

Appropriate correction is required.

Claim Objections

[4] Claim 20 objected to for claiming same subject matter as in Claim 9. Claim 9 already discloses the coupling of the puller bar and studbolt to be tapered (line 10).

Claim 36 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the ORIGINAL specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitations 3.005 mm pitch for the external puller bar thread and 3.00 mm pitch for the internal studbolt thread were not previously disclosed in the preliminary amendment filed 03 November 2003.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

[5] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[6] Claims 1, 2, and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Heinhold et al. US-5,878,490 in view of Simms et al. EP-0797012 A2 and Pappas US-3,424,080.

Heinhold et al. disclose a hydraulic tensioner comprising: a puller bar (30), nut body (26) having a tapered portion (36), an annular collar (lower 28) having a complimentary tapered recess and engaged with a bridge (upper 28) extending around and over the nut body (26), and hydraulic means (34) to move the puller bar.

However, Heinhold et al. fail to disclose expressly the tapered portion (36) to be **downward and inward**, and the studbolt to have an **internal thread** engaged with the threaded end of the puller bar.

Pappas teaches a nut body having a **downward and inward** taper for even stress distribution in the threads of the nut body at the lower end (Col 2 lines 40-48).

Simms et al. teach a puller bar (17) having a threaded end engaged with an **internal thread** of a studbolt (1) (Figure 2, Col 1 lines 26-33).

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the nut body taught by Heinhold et al., to have a downward and inward tapered outer

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surface as suggested by Pappas, in order to evenly distribute the stresses in the lower threads of the nut.

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the studbolt taught by Heinhold et al., to have an internal thread to serve as a means for gripping as suggested by Simms et al., in order to provide a coupling even when no length of the studbolt protrudes beyond the nut.

As for claim 2, Simms et al. teach a puller buddy (36, Figure 2) for the advantages described in Col 5 lines 42-50.

[7] Claims 3-12, 13, 16, 21, 22, 34, and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Heinhold et al. US-5,878,490 in view of Simms et al. EP-0797012 A2 and Pappas US-3,424,080 as discussed above, in further view of DeLange et al. US-5,092,635.

Heinhold et al. v. of Simms et al. and Pappas discloses all of the limitations discussed above, including a larger pitch on the external thread of the puller bar that could be 100.1-100.5% (Simms et al. Col 9 lines 8-10 and 18-22).

However, Heinhold et al. v. of Simms et al. and Pappas fails to disclose expressly **stepped threads, tapered threads, buttress threads, approximate 10° taper.**

DeLange et al. teach **stepped threads, buttress threads, and an approximate 10° taper,** for use in hydraulic environments for their sealing and load distributing advantages (Col 4 lines 5-6).

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the threads taught by Simms et al., to comprise the stepped threads, buttress threads, or

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taper as suggested by DeLange et al., in order to achieve a stronger joint under intense loading (Col 2 lines 31-42).

As for claim 16, Simms et al. show a shoulder (36) co-operating with the puller bar and studbolt that is substantially perpendicular to the longitudinal axis.

[8] Claims 9-12, 19, and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Simms et al. EP-0797012 A2 in view of DeLange et al. US-5,092,635.

Simms et al. teach a coupling for a hydraulic tensioner comprising a puller bar having an external thread with a larger pitch than a studbolt having an internal thread that could be 100.1-100.5% (Simms et al. Col 9 lines 8-10 and 18-22).

However, Simms et al. fail to disclose expressly **stepped** threads, **buttress** threads, and a **taper**.

DeLange et al. teach **stepped** threads, **buttress** threads, and a **taper**, for use in hydraulic environments for their sealing and load distributing advantages (Col 4 lines 5-6). The thread shoulders are substantially perpendicular to the common axes.

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the threaded coupling taught by Simms et al., to comprise any number of different types of threaded connections well known in the hydraulic coupling art, such as the tapered buttress or stepped threads suggested by DeLange et al.; in order to gain the advantageous stress-distributing and sealing characteristics associated with tapered buttress and stepped threads.

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[9] Claim 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Heinhold et al. US-5,878,490 in view of Simms et al. EP-0797012 A2, Pappas US-3,424,080, and DeLange et al. US-5,092,635 as discussed above, in further view of Snyder et al. US-4,854,798.

Heinhold et al. v. Simms et al., Pappas, and DeLange et al. teaches a nut assembly according to the instant claim 13.

However, Heinhold et al. v. Simms et al., Pappas, and DeLange et al. fails to disclose expressly, a **washer** having a spherical surface and a mating shell surface to enable self-alignment.

Snyder et al. teach a **washer** (22) having an spherical bearing surface and a complimentary surface (32) in combination with a hydraulic tensioning nut, in order to promote self-alignment and eliminate bending or uneven loading to the studbolt.

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the nut assembly taught by Heinhold et al. v. Simms et al., Pappas, and DeLange et al., to comprise a washer having a spherical surface as suggested by Snyder et al., in order to promote self-alignment and even loading to the studbolt.

[10] Claim 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Heinhold et al. US-5,878,490 in view of Simms et al. EP-0797012 A2, and Pappas US-3,424,080 as discussed above, in further view of Raber US-4,177,999.

Heinhold et al. v. Simms et al. and Pappas, teaches a nut assembly according to the instant claim 1.

However, Heinhold et al. v. Simms et al. and Pappas fails to disclose expressly a **washer** having slip means that could act as a release for high tension.

Raber teaches a **washer** having slip means that could act as a release for high tension, and could also serve to promote self-alignment.

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the nut assembly taught by Heinhold et al. v. Simms et al. and Pappas, to comprise a washer having a means for slipping as suggested by Raber, in order to promote self-alignment and serve as safe releasable means under high tensioning loads.

[11] Claims 18 and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over Heinhold et al. US-5,878,490 in view of Simms et al. EP-0797012 A2, and Pappas US-3,424,080 and DeLange et al. US-5,092,635 as discussed above, in further view of Raber US-4,177,999.

Heinhold et al. v. Simms et al., Pappas, and DeLange et al. teaches a nut assembly according to the instant claim 16.

However, Heinhold et al. v. Simms et al., Pappas, and DeLange et al. fails to disclose expressly a **washer** having slip means that could act as a release for high tension.

Raber teaches a **washer** having slip means that could act as a release for high tension, and could also serve to promote self-alignment.

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the nut assembly taught by Heinhold et al. v. Simms et al., Pappas, and DeLange et al., to comprise a washer having a means for slipping as suggested by Raber, in order to promote self-alignment and serve as safe releasable means under high tensioning loads.

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[12] Claim 33 rejected under 35 U.S.C. 103(a) as being unpatentable over Simms et al. EP-0797012 A2 in view of DeLange et al. US-5,092,635 as discussed above, in further view of Raber US-4,177,999.

Simms et al. v. DeLange et al. teaches a nut assembly according to the instant claim 9.

However, Simms et al. v. DeLange et al. fails to disclose expressly a **washer** having slip means that could act as a release for high tension.

Raber teaches a **washer** having slip means that could act as a release for high tension, and could also serve to promote self-alignment.

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the nut assembly taught by Simms et al. v. DeLange et al., to comprise a washer having a means for slipping as suggested by Raber, in order to promote self-alignment and serve as safe releasable means under high tensioning loads.

Conclusion

[13] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows:

US-3,707,107 Bieri teaches a stepped threaded connection for use in a hydraulic tensioner, the connection having dissimilar pitches (Col 1 lines 19-22) for better load distribution

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of high stresses in tight spaces (Col 2 lines 1-5). Bieri also shows a washer and the advantageous use of tapered surfaces.

US-5,253,967 Orban et al. teach a puller buddy.

US-5,263,997 Parker et al. teach a load distributing washer having a spherical surface (Col 4 lines 9-10 and 15-26).

US-4,815,360 Winterle teaches the advantages of making a nut tapered (Col 3 lines 36-68 and 43-47). The nut is similarly engaged by a spanner-type component.

US-5,137,408 Junkers teaches a hydraulic nut of the prior art.

US-3,797,336 Howe teaches the quick connecting advantage of a conical seated nut.

US-2,571,265 Leufven teaches a hydraulic nut of the prior art.

US-5,368,344 Plangetis discloses that it is common to use tapered holes and studs to join components (Col 2 lines 11-12).

US-3,887,990 Wilson shows advantages of a tapered buttress thread.

US-3,117,485 Jansen shows a tapered nut and mating seat in a clamping device of the prior art.

US-4,182,215 Green et al. show the advantages of buttress threads in hydraulic nuts.

US-3,083,042 Collar shows that tapered threads can alternatively be any type of thread (Col 2 lines 14-18).

US-5,046,906 Bucknell teaches a hydraulic nut using a conical (and stepped diameter) nut and mating seat, and also discloses stepped and buttress threads.

US-3,210,096 Van der Wissel teaches a threaded coupling of the prior art.

US-4,346,920 Dailey teaches a threaded coupling of the prior art.

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US-3,886,707 Heidt teaches internal gripping means (12) on a pre-stressed studbolt.


US-6,112,396 Steinbock, shows tapered threads to achieve a better load distribution after deformation in tensioning (Col 6 lines 14-18).

[14] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (703) 305-2693. The examiner can normally be reached on 7:30 am - 5:00 pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (703) 306-4115. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS


ROBERT J. SANDY
PRIMARY EXAMINER